



Soybean Biotechnology Seminar

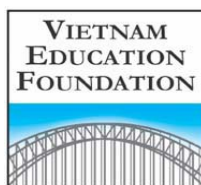
May 15-30, 2005

Hanoi and Cantho, Vietnam

Supported by:

Vietnam Education Foundation
 Vietnam's Ministry of Agriculture and Rural Development
 Vietnam Agricultural Science Institute
 Cantho University, Vietnam

United States Department of Agriculture – Foreign Agricultural Service
 National Center for Soybean Biotechnology, University of Missouri-Columbia, USA





Soybean Biotechnology Seminar

Welcome and thank you for your participation in the Soybean Biotechnology seminar and workshop. The National Center for Soybean Biotechnology (NCSB) at the University of Missouri-Columbia (MU) is proud to be a part of this program. We are grateful to the Vietnam Education Foundation for financial support. We also wish to express our sincere thanks to Prof. Dr. Bui Ba Bong, Vice Minister of the Ministry of Agriculture and Rural Development (MARD); Prof. Dr. Tran Dinh Long, Director of the Legumes Research and Development Center of the Vietnam Agricultural Science Institute (VASI); and Prof. Dr. Le Quang Minh, Rector and Dr. Le Viet Dung, Director of the International Relations Department of Cantho University for their help and support.

We acknowledge the Division of Plant Sciences in the College of Agriculture, Food and Natural Resources and the Asian Affairs Center at MU for support and financial contribution. The handbook was produced through funding support from the U.S. Department of Agriculture's Foreign Agricultural Service.

Finally, we wish to thank the staff at VASI, Cantho University, and NCSB for their help in this program.

Sincerely,

Henry

Henry T. Nguyen
Professor and Director
National Center for Soybean Biotechnology
University of Missouri-Columbia

Soybean Biotechnology Seminar Program

Program at Vietnam Agricultural Research Institute (VASI), Van Dien, Hanoi

Monday, May 16, 2005

8:30 – 9:00	Welcome and Introduction Dr. Henry Nguyen , Director, National Center for Soybean Biotechnology, MU Dr. Nguyen Van Bo , Director General, Department of Science and Technology, MARD Dr. Tran Dinh Long , Director, Legumes Research and Development Center, VASI Mr. Vu Minh Duc , Program Manager, Vietnam Education Foundation, Hanoi Office
9:00 – 10:00	Dr. Gary Stacey , MSMC Endowed Professor, National Center for Soybean Biotechnology, University of Missouri “Soybean genomics and an overview of soybean nodulation”
10:00 – 10:30	Break
10:30 – 11:30	Dr. Stacey's lecture (continued)
11:30 – 12:00	Discussions <i>Lunch</i>
14:00 – 15:00	Dr. Henry Nguyen , MSMC Endowed Professor, National Center for Soybean Biotechnology, University of Missouri “Soybean genome mapping and applications of molecular markers for soybean improvement”
15:00 – 15:30	Break
15:30 – 16:30	Dr. Nguyen's lecture (continued)
16:30 – 17:00	Discussions

Tuesday, May 17

9:00 – 10:00	Dr. Tom Clemente , Professor, University of Nebraska “Soybean transformation, reverse genetics and genetic engineering”
10:00 – 10:30	Break
10:30 – 11:30	Dr. Clemente's lecture (continued)
11:30 – 12:00	Discussions <i>Lunch</i>
13:30 – 14:20	Dr. Tara T. Vantoai , Plant Physiologist, Soil Drainage Research Unit, U.S. Department of Agriculture-Agricultural Research Service “Microarray Analysis: Linking genes, genomes and expression to the biology of flooding tolerance”
14:20 – 14:40	Break
14:40 – 15:40	Dr. Vantoai lecture (continued)
15:40 – 16:10	Discussions
16:10 – 16:30	Break
16:30 – 17:30	Dr. Tri Vuong , Department of Crop Sciences, University of Illinois-Urbana “Microarray analysis and development of PCR-based markers for resistance to sclerotinia stem rot”

Wednesday, May 18

9:00 – 10:00	Dr. David A. Sleper , Professor of Agronomy, National Center for Soybean Biotechnology, University of Missouri “Important diseases of soybean with emphasis on breeding for resistance to the soybean cyst nematode”
10:00 – 10:30	Break
10:30 – 11:30	Dr. Grover Shannon , Professor and David Haggard Endowed Chair of Soybean Breeding, University of Missouri – Delta Center “Breeding soybeans for tolerance to abiotic stress”
11:30 – 12:00	Discussions

Soybean Biotechnology Seminar Program

Program at Cantho University, Cantho City, Vietnam

Monday, May 23, 2005

8:30 – 9:00	Welcome and Introduction Dr. Henry Nguyen , Director, National Center for Soybean Biotechnology, MU Dr. Le Quang Minh , Rector, Cantho University Dr. Le Viet Dung , Director, Department of International Relations, Cantho University Vietnam Education Foundation Representative
9:00 – 10:00	Dr. Gary Stacey , MSMC Endowed Professor, National Center for Soybean Biotechnology, University of Missouri “Soybean genomics and an overview of soybean nodulation”
10:00 – 10:30	Break
10:30 – 11:30	Dr. Stacey's lecture (continued)
11:30 – 12:00	Discussions <i>Lunch</i>
14:00 – 15:00	Dr. Henry Nguyen , MSMC Endowed Professor, National Center for Soybean Biotechnology, University of Missouri “Soybean genome mapping and applications of molecular markers for soybean improvement”
15:00 – 15:30	Break
15:30 – 16:30	Dr. Nguyen's lecture (continued)
16:30 – 17:00	Discussions

Tuesday, May 24

9:00 – 10:00	Dr. Tom Clemente , Professor, University of Nebraska “Soybean transformation, reverse genetics and genetic engineering”
10:00 – 10:30	Break
10:30 – 11:30	Dr. Clemente's lecture (continued)
11:30 – 12:00	Discussions <i>Lunch</i>
13:30 – 14:20	Dr. Tara T. Vantoai , Plant Physiologist, Soil Drainage Research Unit, U.S. Department of Agriculture-Agricultural Research Service “Microarray Analysis: Linking genes, genomes and expression to the biology of flooding tolerance”
14:20 – 14:40	Break
14:40 – 15:40	Dr. Vantoai lecture (continued)
15:40 – 16:10	Discussions
16:10 – 16:30	Break
16:30 – 17:30	Dr. Tri Vuong , Department of Crop Sciences, University of Illinois-Urbana “Microarray analysis and development of PCR-based markers for resistance to sclerotinia stem rot”

Wednesday, May 25

9:00 – 10:00	Dr. David A. Sleper , Professor of Agronomy, National Center for Soybean Biotechnology, University of Missouri “Important diseases of soybean with emphasis on breeding for resistance to the soybean cyst nematode”
10:00 – 10:30	Break
10:30 – 11:30	Dr. Grover Shannon , Professor and David Haggard Endowed Chair of Soybean Breeding, University of Missouri – Delta Center “Breeding soybeans for tolerance to abiotic stress”
11:30 – 12:00	Discussions

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The Vietnam Education Foundation (VEF) is an independent United States federal agency founded by the U.S. Congress to strengthen the science and technology communities in Vietnam through educational exchange and scientific and technical cooperation.

Mission Statement

Help Vietnam establish a science, engineering and medical community of people and institutions that can implement a strong teaching and research agenda, create economic growth, maintain scientific cooperation with the U.S., and enable Vietnam to gain from and contribute to scientific and technological advances globally.

VEF now counts more than 100 Fellows studying at top universities across the United States; 50 additional Fellows are slated to depart for the U.S. by the end of 2005. VEF Fellows represent a sampling in the fields of physical sciences, natural sciences, environmental sciences, mathematics, medicine, and technology including information technology and biotechnology.

National Center for Soybean Biotechnology, U.S.A.

Dr. Henry T. Nguyen, Director and MSMC Endowed Professor of Genetics and Biotechnology
Dr. Gary Stacey, Associate Director and MSMC Endowed Professor of Functional Genomics
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The University of Missouri-Columbia was recently designated by United States Congress as the site for the new National Center for Soybean Biotechnology (NCSB). The foundation for this National Center was the Center for Soybean Genomics and Biotechnology, previously formed at the University of Missouri-Columbia in support of interdisciplinary research on the genomic structure and function of soybean genes. The ultimate goal of the NCSB is to provide innovative molecular approaches that can be applied toward soybean improvement.

The NCSB is a collaborative program among scientists at the University of Missouri, USDA-ARS Plant Genetics Unit in Columbia, and the Donald Danforth Plant Science Center in St. Louis, MO. There are currently more than 30 researchers working together from diverse fields including agronomy, microbiology and plant pathology, biochemistry, animal science, food science, molecular biology, and agricultural economics.

The NCSB and its scientists are supported by the Missouri Soybean Merchandising Council (MSMC), federal and state agencies, and private industry.

Vision Statement

By conducting and providing research in soybean genomics and biotechnology, NCSB contributes to the genetic improvement of soybeans for food, human health, and industrial uses, while increasing the profitability of the United States soybean industry.

Mission Statement

- ❖ Provide genomic resources and bioengineering technologies to support the U.S. soybean industry.
- ❖ Improve the profitability of soybean production for U.S. producers by enhancing yield, pest and pathogen resistance, abiotic stress tolerance, and value-added traits.
- ❖ Provide educational opportunities in soybean biotechnology at the primary education, undergraduate, and graduate student level.
- ❖ Conduct outreach and extension activities to inform the producers and the general public about the latest scientific discoveries and developments in soybean biotechnology and products.

University of Missouri – Columbia, U.S.A.

Website: www.missouri.edu

The NCSB is located at the University of Missouri-Columbia (MU). Founded in 1839 as the first public university west of the Mississippi river, MU has a long, stellar history in plant and agricultural science research and the dissemination of the resulting knowledge around the world. MU is the one of the most comprehensive and diverse universities in the United States. MU has an excellent reputation and is renown for providing service to the plant genetics and genomics communities worldwide. Of particular note are those investigating maize, wheat and *Arabidopsis*. Louis J. Stadler pioneered work on the nature of mutations using maize and barley. Nobel prize winner Barbara McClintock's work at Missouri in the 1940s led to the discovery of mobile genes. Ernie Sears revolutionized wheat genetics and wheat production in the 1950s, and in the 1970s George Redei was instrumental in developing the genetics of the model plant, *Arabidopsis*. Ed Coe conducted pioneering work on maize genome mapping and the development of the maize genetics database. George Smith originated the ideas and developed the first workable system for phage display recombinatorial selection of high affinity molecules. It is from his interest in the filamentous phage that the idea of phage display evolved. Other faculty have been instrumental in the development of the field of informatics. Donald A. B. Lindberg founded the School of Informational Sciences at MU and is recognized as one of the founding members of the field of health informatics. As one of the few universities that combine the state's research mission with the land-grant and teaching missions, MU is uniquely positioned to generate knowledge that can immediately be delivered to the classroom and also extended throughout the state, the nation and the world.

Undergraduate and Graduate Research

MU has a thriving graduate research program and is one of the nation's top universities for involving undergraduates in research.

- Students who participate in real-world research experiences gain critical-thinking skills and intellectual independence — perfect tools for today's knowledge-based economy.
- Mizzou excels at engaging students in research. In fact, the National Science Foundation recognized MU as one of the top ten universities in the country for successfully integrating research into undergraduate education.
- Research also helps students financially. Last year, 2,532 undergraduates received \$4 million and 1,000 graduate students were paid \$7 million from externally sponsored research projects at MU.

MU Science for a Better Life

Research at MU fuels scholarship, innovation and major scientific advances. Currently, more than 1,000 faculty scientists at Mizzou are working to improve human and animal health, food and the environment. Mizzou is among the top 25 universities in the nation in life sciences research funding from the NSF.

MU is an international leader in plant sciences and crop genomics. Mizzou boasts some of the world's leading scientists in wheat, corn and soybean research; serves as a global repository for plant genomics information; and ranks first in the country in the amount of funding from the NSF for plant genomics research. Scientists like Henry Nguyen, director of the National Center for Soybean

Biotechnology at MU, are working to find genetic ways to improve crop yields by developing soybeans that better tolerate drought, floods and pests.

Cantho University, Vietnam

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Founded in 1966, Cantho University, the only state university in the region, is located in the heart of the Mekong Delta. Cantho University has become an important center for research and technology. It is well-known for its out-reach programs serving communities throughout the delta. These essential links create a better understanding of practical problems and enable Cantho University to focus its teaching and research activities on the needs of the rapidly changing labor market.

Cantho University has acquired an enviable reputation among international academic institutions for its realistic approach to training, scientific research, and technology transfer activities. International cooperation at Cantho University comprises many facets: cooperation with international organizations and governments, twinning programs with universities and research institutes, and the sharing of knowledge with other institutions.

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The Ministry of Agriculture and Rural Development (MARD) founded from ministries related to agriculture and rural development has responsibility to implement the function of State management in agriculture, forestry, irrigation and rural development.

Legumes Research and Development Center, Vietnam

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The Legumes Research and Development Center (LRDC) is a major center for soybean and legume research as part of the Vietnam Agricultural Science Institute (VASI). The Center responsibilities are to:

- Develop new and improved varieties of legume crops;
- Transfer advanced technology to farmers;
- Conduct training programs and information dissemination on legume research and development to various agro-ecological zones;
- Establish co-operative relations with both domestic and international organizations to strengthen legume research and development in Vietnam.

United States Department of Agriculture – Foreign Agricultural Service

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The Foreign Agricultural Service (FAS) of the U.S. Department of Agriculture (USDA) works to improve foreign market access for U.S. products, build new markets, improve the competitive position of U.S. agriculture in the global marketplace, and provide food aid and technical assistance to foreign countries.

FAS carries out a broad array of international training, technical assistance, and other collaborative activities with developing and transitional countries to facilitate trade and promote food security. FAS helps countries focus on the critical role science and technology can play in raising agricultural productivity in an environmentally sustainable way.

Program Presenter Information

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